

### **AMENDMENTS TO THE CLAIMS**

Claims 5, 17, 18 and 30-38 were previously cancelled. This Amendment cancels claims 23, 25, 26 and 28 without prejudice, and amends claims 13, 21 and 29. The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

#### **Listing of Claims**

Claim 1. (Previously presented) A sheet bending apparatus comprising:

a first shaping mold and an outline shaping mold defined as a second shaping mold, wherein

the second mold has a pair of spaced end rails and a pair of spaced central rails, the pair of spaced end rails and the pair of spaced central rails defining a boundary around an open area and portions of the end rails and the central rails providing a sheet supporting surface, and

the first mold having a major surface in facing relationship to the sheet supporting surface and the open area of the second mold and at least one passageway having a first end and an opposite second end; the major surface comprising a perimeter and a shaped press face surrounded by a boundary, the boundary of the shaped press face within, and spaced from, the perimeter of the major surface; the major surface having a marginal edge between the perimeter of the major surface and the boundary of the shaped press face, and the marginal edge surrounding the shaped press face, wherein the shaped press face is a convex surface of a solid and the first end of the at least one passageway is at the marginal edge of the major surface of the first mold;

an outer wall having an inner surface, wherein the inner surface of the outer wall defines a boundary;

an elevator arrangement acting on at least one of the first and second molds to move the first and second molds and the outer wall relative to one another between a first position, wherein the first and second molds are spaced from one another and the outer wall is spaced from and out of contact with at least one of the first and second molds, and a second position, wherein the outer wall is in contact with the first and second molds to form an enclosure wherein the first shaping mold provides one side of the enclosure, the second mold provides an opposite side of the enclosure and the sheet supporting surface of the second mold and the first end of the passageway of the first mold are within the boundary defined by the outer wall, wherein the sheet supporting surface of the second mold is in facing relationship to the major surface of the first mold, and fluid communication between interior and exterior of the enclosure is provided through the open area, and the at least one passageway, and wherein with a sheet to be shaped in the enclosure, peripheral edge of the sheet to be shaped is spaced from the inner surface of the outer wall.

Claim 2. (Original) The bending apparatus according to claim 1, wherein the end rails and the central rails of the second mold are continuous and form a continuous sheet supporting surface.

Claim 3. (Previously presented) The bending apparatus according to claim 1, wherein the central rails are between the spaced end rails and the central rails are secured in position, and the end rails are pivotally mounted to pivot from a first position where the end rails and the central rails provide for a generally horizontal support to a second position where portions of the ends of the end rails are raised above the central rails.

Claim 4. (Previously presented) The bending apparatus according to claim 1, wherein the outer wall is securely attached to the first mold and intersection of

the inner surface of the outer wall and the major surface of the first mold defines the perimeter of the major surface of the first mold.

Claim 5. (Cancelled)

Claim 6. (Previously presented) The bending apparatus according to claim 1, wherein the outer wall is securely attached to the second mold and surrounds the sheet supporting surface of the second mold.

Claim 7. (Original) The bending apparatus according to claim 1, wherein the outer wall has one part of an aligning arrangement and the first mold and/or the second mold has another part of the aligning arrangement.

Claim 8. (Previously presented) The bending apparatus according to claim 6, wherein the central rails and the end rails have a "T" shaped cross section defined as a "T" rail with horizontal member of the "T" rail having the sheet supporting surface.

Claim 9. (Previously presented) The bending apparatus according to claim 8, wherein the outer wall is securely attached to outer surface of vertical member of the "T" rail and extends away from the "T" rail and the open area.

Claim 10. (Previously presented) The bending apparatus according to claim 8, wherein the outer wall is securely attached to the horizontal member of the "T" rail and extends away from the "T" rail and the open area.

Claim 11. (Previously presented) The bending apparatus according to claim 8, wherein the sheet supporting surface is a portion of the horizontal member of the "T" rail adjacent the open area of the second mold and the outer wall is a portion of the horizontal member of the "T" rail farthest from the open area.

Claim 12. (Previously presented) The bending apparatus according to claim 6, wherein the central rails and the end rails have an "I" shaped cross section defined as an "I" rail and upper end of the "I" rail is the sheet supporting surface of the second mold and the outer wall is securely attached to an outer vertical surface of the "I" rail and extends away from the "I" rail and the open area.

Claim 13. (Currently amended) A sheet ~~The bending apparatus\_ according to claim 1\_ comprising:~~

a first shaping mold and an outline shaping mold defined as a second shaping mold, wherein

the second mold has a pair of spaced end rails and a pair of spaced central rails, the pair of spaced end rails and the pair of spaced central rails defining a boundary around an open area and portions of the end rails and the central rails providing a sheet supporting surface, and

the first mold\_ wherein the first shaping mold further comprises a support plate and a plate member, the support plate having a perimeter, a first major surface and an opposite second major surface, wherein the plate member is secured to the first major surface of the support plate of the first shaping mold; the plate member having a perimeter, a first major surface and a second opposite major surface, wherein the first major surface of the plate member is in facing relationship to the first major surface of the support plate, wherein the plate member is secured to the first major surface of the support plate of the first shaping mold, and the second major surface of the plate member has a shaped press face, wherein the shaped press face is a convex surface of a solid and is in facing relationship to the sheet supporting surface and the open area of the second mold, and the perimeter of the plate member is a the boundary of the shaped press face, wherein the boundary of the shaped press face is within, and spaced from, the

perimeter of the support plate, the first major surface of the plate member is in facing relationship to the first major surface of the support plate, and the second major surface of the plate member has the shaped press face; the marginal edge of the major surface of the first mold is portion of the first major surface of the support plate between the perimeter of the support plate and the perimeter of the plate member; ,and a plurality of passageways having a first end and an opposite second end, wherein the support plate has a marginal edge between the perimeter of the support plate and the boundary of the shaped press face, and the marginal edge surrounding the shaped press face , and the first end of each the plurality of passageways is at the marginal edge of the major surface of the first mold;

an outer wall having an inner surface, wherein the inner surface of the outer wall defines a boundary;

an elevator arrangement acting on at least one of the first and second molds to move the first and second molds and the outer wall relative to one another between a first position, wherein the first and second molds are spaced from one another and the outer wall is spaced from and out of contact with at least one of the first and second molds, and a second position, wherein the outer wall is in contact with the first and second molds to form an enclosure wherein the first shaping mold provides one side of the enclosure, the second mold provides an opposite side of the enclosure and the sheet supporting surface of the second mold and the first end of the passageway of the first mold are within the boundary defined by the outer wall, wherein the sheet supporting surface of the second mold is in facing relationship to the major surface of the first mold, and fluid communication between interior and exterior of the enclosure is provided through the open area, and the at least one passageway, and wherein with a sheet to be shaped in the

enclosure, peripheral edge of the sheet to be shaped is spaced from the inner surface of the outer wall, and

~~the bending apparatus further comprising a plenum over a portion of the second major surface of the support plate, the at least one passageway is one of a plurality of spaced passageways wherein each one of the plurality of spaced passageways has a first end and a second end with the first end of the plurality of spaced passageways at the marginal edge and the second end of each one of the plurality of the spaced passageways in fluid communication with interior of the plenum.~~

Claim 14 (Previously presented). The bending apparatus according to claim 1 further comprising a plenum, wherein the first shaping mold further comprises a second major surface opposite to the major surface of the first shaping mold and the plenum is positioned over a portion of the second major surface of the first shaping mold, wherein the at least one passageway is one of a plurality of spaced passageways, and each of the passageways has a first end and a second end with the first end of selected ones of the plurality of the passageways in fluid communication with the interior of the enclosure at positions along the marginal edge of the major surface of the first mold and the second end of the selected ones of the plurality of passageways in fluid communication with interior of the plenum.

Claim 15. (Previously presented) The bending apparatus according to claim 1, wherein the at least one passageway is one of a plurality of passageways; each one of the passageways having a first end and a second end, wherein the first end of selected ones of the plurality of passageways is adjacent the boundary of the shaped press face when the first and second molds and the outer wall are in the second position, wherein the selected ones of the passageways pass through the outer wall and the second end of the selected ones of the passageways is at or extends beyond outer surface of the outer wall.

Claim 16. (Previously presented) The bending apparatus according to claim 1, wherein the at least one passageway is one of a plurality of passageways with each one of the passageways having a first end and a second end, wherein the first end of selected ones of the passageways is at the marginal edge of the first mold and adjacent the boundary of the shaped press face when the first and second molds and the outer wall are in the second position, wherein the selected ones of the plurality of passageways pass through the second mold and the second end of the selected ones of the plurality of passageways is accessible from the exterior of the enclosure .

Claims 17 and 18. (Cancelled)

Claim 19. (Previously Presented) The sheet bending apparatus according to claim 21 wherein the second chamber is inside the first chamber and the first chamber is connected by a conduit to a vacuum pump and the second chamber is connected by a conduit to a valve having a first open position and a second open position with the valve in the first open position connected by a conduit to the vacuum pump and with the valve in the second position connected by a conduit to a pressurized fluid system.

Claim 20. (Previously Presented) The bending apparatus according to claim 19, further comprising a mesh cloth securely mounted over the shaped press face, the mesh cloth having a predetermined weave to provide openings of a predetermined size, wherein the size of the opening of the first end of the second plurality of passageways is equal to or less than the predetermined size of the opening of the weave of the mesh cloth overlying the opening of the first end of the second plurality of passageways.

Claim 21. (Currently amended) A sheet bending apparatus comprising:

a first shaping mold having a major surface, a perimeter, a portion of the major surface within and spaced from the perimeter comprising a shaping member having a predetermined shaped press face; a first plurality of passageways having a first end in the major surface of the first shaping mold between the perimeter of the first shaping mold and the shaping member, and a second plurality of passageways having a first end at the shaped press face of the shaping member of the first shaping mold, wherein opposite second end of the first plurality of passageways is in fluid communication with a first chamber, and opposite second end of the second plurality of passageways is in fluid communication with a second chamber;

an outline shaping mold defined as a second shaping mold, the second mold having a pair of spaced end rails and a pair of spaced central rails, the pair of spaced end rails and the pair of spaced central rails defining a boundary around an open area, wherein portions of the end rails and the central rails provide a sheet supporting surface;

an outer wall between the first and second molds, inner surface of the outer wall defining a boundary;

an elevator arrangement acting on at least one of the first and second molds to move the first and second molds relative to one another between a first position, wherein the first and second molds are spaced from one another and the outer wall is spaced from at least one of the first and second molds, and a second position, wherein the first and second molds, and the outer wall form an enclosure, wherein the sheet supporting surface of the second mold and the first end of the first plurality of passageways are within the boundary defined by the inner surface of the outer wall, wherein the first shaping mold provides one side of the enclosure, and the second mold provides an opposite side of the enclosure with the sheet supporting surface of the second mold and the first end of the second plurality of passageways in facing



relationship to one another , and ambient air is accessible to the enclosure at least through the open area of the second mold;

wherein the first plurality of passageways provide fluid communication between the first chamber and the interior of the enclosure; the second plurality of passageways provide fluid communication between the second chamber and interior of the enclosure, and each of the first end of selected ones of the second plurality of passageways has a first part and a second part, wherein the first part has an opening at the press face that has a shape and size at a surface of the press face that remains constant for a predetermined distance from the surface of the press face, and the second part has an opening that is smaller than the opening of the first part to provide a stepped recess in the press face, and

a plate having a plurality of spaced holes therethrough mounted in the stepped recess.

Claim 22. (Original) The bending apparatus according to claim 21, further comprising a mesh cloth securely mounted over the press face of the shaping member, the mesh of the cloth having a predetermined weave to provide spacing of a predetermined opening, wherein the size of the opening of the holes in the plate are equal to or less than the size of the openings in the mesh cloth overlying the holes in the plate.

Claim 23. (Cancelled)

Claim 24. (Previously presented) The bending apparatus according to claim 1 further comprising a pressing station having an upstream end and a downstream end, a heating furnace connected to the upstream end of the pressing station, a cooling furnace connected to the downstream end of the pressing station and a conveying system extending through the heating furnace, the pressing station and the cooling furnace to move the second mold along a path through the

heating furnace, the pressing station and the cooling furnace wherein the first mold is mounted in the pressing station and the elevator arrangement moves the first mold toward and away from the path.

Claims 25 and 26. (Cancelled)

Claim 27. (Previously presented) The bending apparatus according to claim 1 further comprising a pressing station, wherein the first mold and the second mold are mounted in the pressing station, the pressing station having an upstream end and a downstream end, a heating furnace connected to the upstream end of pressing station, a cooling furnace connected to the downstream end of the pressing station, a sheet conveying system extending through the heating furnace and the cooling furnace and an upstream sheet transfer device mounted for movement from a position over a portion of the conveying system in the heating furnace to a position over the second mold.

Claim 28. (Cancelled)

Claim 29. (Currently amended) A sheet bending apparatus comprising:

- a chamber having outer walls, and an entry into an interior of the chamber;

- a first shaping mold mounted in the chamber, the first shaping mold having a press face having a predetermined shape;

- an outline shaping mold defined as a second shaping mold mounted in the chamber in facing relationship to the press face of the first mold, the second mold having a pair of spaced end rails and a pair of spaced central rails, wherein portions of the end rails and the central rails provide a sheet supporting surface with an open area within the boundary of the sheet supporting surface;

- an elevator arrangement acting on at least one of the first and second molds to move the first and second molds relative to one another

between a sheet receiving position where the first and second molds are spaced a first distance from one another, and a sheet pressing position where the first and second molds are spaced a second distance from one another, wherein the first distance is greater than the second distance;

a vacuum pump connected to the interior of the chamber to remove air from the interior of the chamber, and

a conduit having a first end connected to the open area between the shaping rails of the second mold, an opposite second end outside the chamber, and a portion of the conduit between the first and second ends of the conduit extending through one of the outer walls of the chamber to move air through the conduit to the open area of the second mold, wherein the open area is closed when the first and second molds are in the sheet pressing position and at least one sheet is between the press face of the first mold and the supporting surface of the second mold whereby removal of air from the interior of the chamber by the vacuum pump increases the air pressure in the conduit below the at least one sheet to bias the at least one sheet against the press face of the first mold.

Claims 30-38. (Cancelled)

Claim 39 (Previously presented). The sheet bending apparatus according to claim 29 wherein the elevator arrangement comprises a piston to move the second mold toward and away from the first mold, and the conduit comprises a passageway in the piston.

Claim 40. (Previously presented) The sheet bending apparatus according to claim 39 wherein the outer walls of the chamber comprise an upper wall and an opposite lower wall, wherein the upper wall is above the first mold, and wherein the vacuum pump is connected to the interior of the chamber through a hole in the upper wall.

Claim 41. (Previously presented) A sheet bending apparatus comprising:

- a first shaping mold having a major surface and a shaping member having a press face and a perimeter;

- at least one passageway extending through the shaping member, the at least one passageway having one end terminating at the major surface of the first shaping mold adjacent to and outside the perimeter of the shaping member;

- an outline shaping mold defined as a second shaping mold, the second mold having a pair of spaced end rails and a pair of spaced central rails, the pair of spaced end rails and the pair of spaced central rails defining a boundary around an open area and portions of the end rails and the central rails providing a sheet supporting surface;

- an outer wall securely attached to the second mold, inner surface of the outer wall surrounding and spaced from the sheet supporting surface of the second mold, and

- an elevator arrangement acting on at least one of the first and second molds to move the first and second molds relative to one another between a first position, wherein the first and second molds are spaced from one another and the outer wall is spaced from the first mold, and a second position, wherein the first and second molds, and the outer wall form an enclosure wherein the first shaping mold provides one side of the enclosure, the second mold provides an opposite side of the enclosure, and the inner surface of the outer wall surrounds the first end of the at least one passageway.

Claim 42. (Previously presented) The bending apparatus according to claim 1 wherein the open area is closed when the first and second molds are in the second position and at least one sheet is between the shaped press face of the first mold and the supporting surface of the second mold whereby removal of air from interior of the enclosure through the at least one passageway increases air

pressure in the open area below the at least one sheet to bias the at least one sheet against the press face of the first mold.

Claim 43. (Previously presented) The bending apparatus according to claim 1 wherein surface of the shaped press face is a non-porous surface.

Claim 44. (Previously Presented) The sheet bending apparatus according to claim 21 wherein the first part is a circular hole having a first constant diameter and the second part is a circular hole having a second diameter smaller than the first diameter.